2000

Crop Watch No. 2000-26, December 1, 2000

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CROP WATCH

University of Nebraska Cooperative Extension
Institute of Agriculture and Natural Resources

No. 2000-26
Dec. 1, 2000

Dryland sorghum or corn — what's best for your operation?

When considering last year's drought, many dryland farmers may be asking themselves "Should I plant milo or corn, and how much of each should I plant?". To better address this question, University of Nebraska researchers have conducted side-by-side field trials for the last four years in south central and southeastern Nebraska. Following is a synopsis of these trials and their recommendations.

In 1997 we combined the NU dryland sorghum and corn yield performance test plots in the same Nuckolls County field to provide for better comparison. Similar comparisons were made at two other locations in 1998, 1999 and 2000. In the trials, which were conducted in south central and southeast Nebraska, the two crops were compared in the same field, using cultural and management practices appropriate to each. The plots have been in productive soils and the growing conditions have been from fair to excellent.

In 1997, 29 milo hybrids were compared with 38 corn hybrids in Nuckolls County. Both crops were surface planted after disking. The field had been planted to wheat the previous three years. Average corn yields were 81 bu/acre with a range of 61 to 107 bu/acre. This compares to average sorghum yields of 107 bu/acre with a range of 77 to 124 bu/acre.

In 1998, similar comparisons were planted in Otoe and Webster counties. In Otoe County, 60 corn hybrids were planted in the same field with 18 sorghum hybrids. Both crops were planted without tillage into soybean stubble. Average corn yield from this trial was 138 bu/acre. Individual hybrid yields ranged from 117 to 159 bu/acre. This compares to an average 133 bu/acre for sorghum with a 115-158 bu/acre yield range. Cool and wet conditions during plant emergence and early growth and soil compaction slowed development and emergence of both crops

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Crop Watch features winter meetings, subscription update

This issue of ***Crop Watch***, the final one for 2000, features information on a number of educational workshops and meetings available this winter and spring for Nebraska agricultural producers and agribusiness.

The Oct. 27 issue also listed upcoming meetings on marketing and risk management, corn/soybean production and other topics. These events provide an opportunity to update your knowledge in particular areas or to delve deeper into developing technologies. CCA/CEU credits are available for most of the meetings and college credit is available for some of them. Please be sure to check with your local Cooperative Extension office for more information on any of these.

Order *Crop Watch* now for 2001

A subscription form is included on page 238 to order the print version of ***Crop Watch*** for 2001. The web version of the newsletter will be free next year. For more information, feel free to write or call me at the address on page 230.

Lisa Jasa, Editor

Corn vs sorghum (Continued from page 229)

and contributed to poor stands. Corn was yellow after emergence due to excess moisture. In Webster County in 1998, 36 corn hybrids were compared to 20 sorghum hybrids. Both crops were no-till planted into wheat stubble. Average corn yield was 131 bu/acre with yields ranging from 107 to 172 bu/acre. This compares to an average yield of 153 bu/acre for sorghum with a range of 125 to 177 bu/acre. Conditions were excellent at this site.

In 1999 the trials were conducted in Nuckolls and Gage counties. The Gage county site had over 40 corn hybrids and 22 sorghum hybrids. The plot was planted into soybean stubble and had excellent growing conditions through late summer when it became fairly dry. Most of the corn plot was lost because of a herbicide problem, however comparing the hybrids that were not damaged and the producer's corn in the rest of the field, the corn yielded about 150 bu/acre. The sorghum averaged 143 bu/acre with yields ranging from 122 to 170 bu/acre. The Nuckolls County site was no-till planted into wheat stubble and contained 33 corn hybrids and 19 sorghum hybrids. The growing conditions were fairly wet early and very dry late in the summer. Average corn yields were 88 bu/acre, ranging from 73 to 110 bu/acre. The sorghum yields averaged 109 bu/acre and ranged from 92 to 121.

The 2000 growing season plots were in Nuckolls and Lancaster counties. The Lancaster County field was hailed and not harvested. In Nuckolls County the plot was no-till planted into wheat stubble with 18 sorghum and 25 corn hybrids. The growing conditions were very dry and hot all summer with some rain and cooler conditions in July and a very hot and dry August-September. The sorghum averaged 125 bu/acre with yields ranging from 113 to 136 bu/acre and the corn averaged 122 bu/acre, ranging from 90 to 149 bu/acre. No-till planting into wheat stubble was the key to these excellent yields. The corn fields on ether side of the plot, which were not in wheat stubble, had yields of less then 20 bu/acre.

When we started this project, we expected that sorghum would outyield corn in dry years, corn would outyield sorghum in wet years, and they would have about the same yields in average years. However, four years of data have shown that in south central Nebraska, sorghum outyielded corn by an average of 18 bu/acre. In southeast Nebraska in two years with excellent yields, the average yields were 6 bu/a higher for corn. The data suggest that corn and sorghum would yield about the same in the 120 to 140 bu/acre range. If your expected yield is less then this, sorghum will usually be the better yielding crop. It also appears hybrid selection is more important with corn then sorghum because of a wider yield range corn.

People expect corn to outyield milo, but when you ask where the crops were raised, the corn was usually planted on the best land (most fertile, best subsoil moisture, and most residue cover) and the sorghum was grown on the poorer land (eroded hill side that has less subsoil moisture, and less residue cover). When both are planted into the same conditions, sorghum appears to outyield corn in south central Nebraska.

Figuring the economics

In addition to yield differences, typically there also are differences in prices and production costs. On the

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CROP WATCH

In print or on the Web

Crop Watch is published from March to November by the University of Nebraska Institute of Agriculture and Natural Resources Communications and Information Technology, PO Box 830918, 108 Agricultural Communications Bldg., UNL, Lincoln, NE 68583-0918. To order either a printed or electronic (web) subscription or to change your address, write to ***Crop Watch*** at the above address or call (402) 472-7981. A sample copy of the Web version is available free at *http://www.ianr.unl.edu/cropwatchnews*

Lisa Jasa, Editor

For more information about a particular subject, write the authors at the addresses below:

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Fall precipitation improves Nebraska moisture outlook, but what's coming?

As producers consider the 2000 drought and select seed for the next season, some are questioning the potential for another drought in 2001. There has been a significant reduction in the intensity of the drought across Nebraska, especially over the western half of the state. The state is not out of the woods yet, but precipitation patterns this fall have resulted in a significant increase in moisture, especially compared to the same period in 1999. The following addresses some of the questions which have been posed about the current status and forecasts for this winter and spring.

How does this fall compare to last fall, as far as dryness, post harvest, and amount of precipitation received?

Precipitation in September and October 2000 has been significantly wetter than in the same period of 1999. All climate districts have shown improvements with the central, south central, and southwest districts showing the greatest improvements. Area weighted precipitation levels in inches for each

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Corn vs sorghum *(Continued from page 230)*

average over the last 10 years, grain sorghum prices in Nebraska have averaged about 25 cents per bushel below the corn price, although the spread in loan rates may be less (as low as 20 cents per bushel) and grain sorghum prices have actually exceeded corn prices this fall in some locations.

Since production costs are lower for sorghum, up to $12 per acre for seed alone, sorghum generally requires less than a 10% yield advantage to net more than corn. For example using ten year average prices, 106 bushel grain sorghum at $2.20 per bushel (106 x $2.20 = $233.20) would be more profitable than 100 bushel corn at $2.45 per bushel at a $12 per acre higher production cost (100 x $2.45 -$12 = $233). If yields are below 40 bushels per acre, corn must yield more than sorghum to be the most profitable alternative at $2.45 corn, $2.20 sorghum and an additional $12 per acre cost of growing corn.

Crop insurance

Crop insurance coverage may be an additional consideration in choosing between corn and grain sorghum, particularly when beginning the year with low subsoil moisture. For farms that have a higher proven yield for dryland corn than grain sorghum, it might appear an insured producer would be better off in case of crop failure to have planted corn than grain sorghum. However, this conclusion is not necessarily correct, since multiperil premiums are generally higher per dollar coverage for corn. Consider the example where for the same cost one could buy 65% coverage on a 110-bushel sorghum yield with a $1.75 per bushel price election or 60% coverage on a 120-bushel corn yield at $1.90 per bushel price election. The corn coverage would generate an indemnity of .60 x 120 x $1.90 = $137 per acre in case of complete crop failure. The sorghum would generate a maximum indemnity of .65 x 110 x $1.75 = $125 per acre. If production costs are $12 per acre less on sorghum, the two are breakeven. Further, if you were to raise some sorghum (but corn would have failed completely) and the market price is above the indemnity price, you would be better off having planted sorghum even though in our example the yield guarantee on the sorghum, .65 x 110 = 71.5 bu, is slightly less than the yield guarantee on the corn, .60 x 120 = 72 bu. Producers are encouraged to ask their insurance agent for the protection available for the some premium and make their own comparison.

Conclusion

We would not discourage anyone from growing dryland corn. Four years of data in six locations is not enough information to make conclusive decisions. There are several good reasons to produce dryland corn including a better herbicide selection, crop rotation benefits, spreading out field work and better maximum yield potential in excellent years; however, sorghum appears to be able to match or outyield corn most years, is cheaper to produce, and is less risky in dry years.

For more information, contact your Cooperative Extension Office or view hybrid test results at *http://www.ianr.unl.edu/ianr/agronomy/varitest2.htm.*

Steve Melvin, Extension Educator
Roger Elmore
Extension Crops Specialist
Lenis Nelson
Extension Crop Hybrid and Seed Production Specialist
Roger Selley, Extension Farm Management Specialist

Fall precipitation (Continued from page 231)

districts are (first number is for 2000, second number is for 1999): Panhandle (3.46, 2.75), North Central (3.51, 2.44), Northeast (3.51, 0.78), Central (3.31, 0.96), East Central (3.35, 1.38), Southwest (5.45, 1.27), South Central (3.76, 1.10), and Southeast (3.66, 1.54).

The increase in precipitation resulted from an upper air trough situated over the Great Basin region of the Rocky Mountains. A blocking high pressure system over the southeastern United States allowed this trough to continually move surface lows from southwestern United States into the central High Plains from late September through mid November.

Beginning in mid November, this pattern shifted eastward. The upper air trough now is over the northeastern United States. Precipitation patterns this winter will be determined by how long this pattern remains in place. If this pattern holds through winter, the central United States should receive normal to below normal precipitation with normal to slightly above normal temperatures.

However, there is evidence of an active pattern in the Gulf of Alaska. If this continues into winter, strong lows on occasion will move into the Great Basin region and across the central High Plains. This will reinforce the upper air low over the northeastern states. Under this scenario, Nebraska can expect to see periods of benign weather for one to three weeks, followed by stormy weather for one to two weeks. This pattern would favor normal to above normal precipitation and normal to below normal temperatures. This pattern is likely to occur for at least the first half of winter.

What do the seasonal outlooks predict for precipitation in the December-February period?

The Climate Prediction Center's (CPC) long-lead outlooks indicate equal chances of receiving above normal, below normal, or normal precipitation during the time frame. Precipitation during this time ranges from an average of 1.50 inches across extreme western Nebraska to 2.75 inches in extreme southeastern Nebraska. This represents approximately 7% of annual precipitation. In a normal year, less than 50% of the moisture that falls during the December-February period will be captured and stored in soil profiles.

What do the seasonal outlooks predict for precipitation from March to May?

Once again, the long lead models fail to point toward a definable precipitation trend. There are equal chances of receiving above normal, below normal, or normal precipitation from March to May for the entire state of Nebraska. Extreme western Nebraska averages approximately 5.50 inches during the period, while extreme eastern Nebraska averages about 9.00 inches. This represents, on average, 30-35% of annual precipitation.

There is evidence that above normal precipitation from March through mid-April, followed by below normal precipitation and above normal temperatures from mid-April through late May have a positive impact on forage and grain production. If the preferred upper air pattern mentioned earlier remains in place into spring, Nebraska could very well see a wet pattern characterized by outbreaks of severe thunderstorms and strong, wet snowstorms.

Our state's reservoirs and soil profiles were drawn down this summer. What's the likelihood that there will be enough snow pack to recharge our soils and reservoirs?

Soil moisture recharge has been promising during the last 45 days. All soil moisture monitoring sites across the state have experienced net gains. The most dramatic changes have occurred across the southwestern corner of the state with an average net gain of 4 inches. Every location in the monitoring network has experienced a net gain of at least two inches. All gains have been limited to the top 2-3 feet of soil profiles.

The critical question going forward will be whether average temperatures are above or below normal during the period. Both soil and pond/lake evaporation would be minimized by a return to normal temperatures. Water loss from soils can be significant when winter average temperatures remain above normal because they are continually exposed to freeze/thaw conditions. Likewise, below normal temperatures would increase the likelihood that soils freeze and ponds/lakes remain iced over for the majority of the winter months, limiting surface evaporation losses.

Below normal temperatures would increase the likelihood of snow runoff into streams, ponds, and reservoirs. During a normal winter, soils remain frozen from mid-December through late February. Below normal temperatures also increase the probability that some snow will remain on the ground when the normal spring thaw begins.

The critical question for western Nebraska will be how much snow falls on the leeward side of the Rocky Mountains of northern Colorado into southern Wyoming. This area is the source region for the southern and northern branches of the Platte River. This fall has been promising as several large snow storms have already developed. The March-April period will be critical since on average 40% of the mountain snow pack is made during these two months. At this time, a determination on whether above normal precipitation will fall across this region during these critical months can not be made.

Al Dutcher, State Climatologist
Department of Agricultural Meteorology

Winter Extension meetings offer updates, education and training

Cooperative Extension and the NU Institute of Agriculture and Natural Resources are hosting a number of meetings and workshops this winter. (Please see the Oct. 27 *Crop Watch* for additional listings and visit the web site ***Rural Routes*** at ruralroutes.unl.edu for updates.) For more information on any meeting, please contact your local Cooperative Extension Office.

Crop Protection Clinics

The annual series of Cooperative Extension Crop Protection Clinics feature practical, economical and environmentally sound management strategies for insect, plant disease and weed problems in crops. Meetings will be held from 9 a.m. to 4 p.m. at each site. Registration begins at 8 a.m.

The $20 registration fee includes proceedings, publications, refreshment breaks and a noon meal. Commercial pesticide applicator recertification for the Ag Plant category is available at all locations. Topics will vary some from meeting to meeting to allow speakers to address areas of greatest local interest.

Depending on the local program, topics will include:

Weed science: Weed management and dry weather; harvest aid treatments and perennial weed control; new weapons for the war against winter annual grass weeds; weed control timing in corn and soybeans; Nebraska Soybean and Feed Grain Profitability project; integrated approaches for nightshade control in dry beans (Panhandle only); and pesticide application technology and education.

Entomology: New products for corn rootworm and seedling insect management; new crop insects; transgenic corn hybrids and resistance management (workshop); soybean decision making for defoliating insects, including bean leaf beetle management; corn rootworm insecticide resistance update; and Mexican bean beetle in dry beans (Panhandle only).

Plant pathology: Biology of fungal plant pathogens; Stewart's Wilt, and interrelationships of plant viruses and their vectors.

Meetings will be held at the following locations:

Jan. 3, Lincoln, Lancaster Extension Education Center

Jan. 4, Auburn, Arbor Manor, 1617 Central Avenue

Jan. 5, Fremont, Holiday Lodge, 1220 East 23rd Street

Jan. 9, Norfolk, Learning Center, 601 East Benjamin

Jan. 10, O'Neill, Allison's Restaurant, 5th and Douglas Streets

Jan. 11, Hastings, Garden Café (Holiday Inn), 2201 Osborne Drive East

Jan. 12, York, Chances "R", 124 West 5th Street

Jan. 16, Scottsbluff, Panhandle REC, 4502 Avenue I

Jan. 17, Ogallala, Ramada Ltd., 201 Chuckwagon Road

Jan. 18, Broken Bow, Uncle Ed's Steak House, 625 South 10th Street

Jan. 19, Holdrege, Ag Center, 1308 2nd Street

Jan. 23, Fairbury, 4-H Building, 56885 PWF Road

Alex Martin
Extension Weeds Specialist

Winter wheat disease problems appear minimal

Based on surveys in eastern and south central Nebraska in late October, our winter wheat crop in these areas is looking remarkably good considering the slow start this fall. Fall rains helped with emergence and most stands examined were uniform and the plants surprisingly healthy. We were concerned that the dry conditions at planting might delay emergence along with stressing the plants to the point where crown and root rot could become active earlier than normal. This disease is triggered by prolonged moisture stress coupled with relatively warm soil temperatures in the fall. Fortunately, timely rains and cooler weather reduced the stress potential on the young wheat plants.

There was no evidence of any crown and root rot on plants examined during the October surveys. Colder than normal temperatures and snow cover that have occurred this November will further reduce to the threat of crown and root rot developing this fall. Wheat seedlings going into winter healthy should also be less vulnerable to winterkill this winter and crown and root rot next spring.

Septoria leaf spot was the only disease detected in the recent surveys. Incidence was sporadic, often associated with continuous wheat, and severity was low. Septoria appears as small brown spots or blotches on the leaves.

John E. Watkins
Extension Plant Pathologist

Plant & Pest Clinic

The following diseases were diagnosed Oct 11 - Nov 27: corn - penicillium grain mold (Perkins County), soybean-charcoal rot (Boone and Seward counties) and brown stem rot (Lancaster County).

Jennifer Chaky, Plant & Pest Clinic Director

Workshops feature bio and GIS technologies

The UNL Department of Agronomy and Horticulture is offering distance education workshops this spring in herbicide mode of action, crop genetic engineering and farm-level mapping with GIS/GPS technology.

To request a registration form or to enroll by phone for CEU credit or non-credit (professional development), call IANR's Communication and Information Technology at (800) 755-7565. To enroll in one of these workshops for academic credit, contact Dr. Deana Namuth, distance education lecturer in the Department of Agronomy and Horticulture at (402) 472-1549. Students enrolled in UNL degree programs (including Master of Agriculture) may apply for a scholarship to cover partial workshop costs. Please contact the instructor listed with the class for more information. To register for graduate credit, where available, you must be currently admitted to the UNL Graduate College. Admission forms are available on line at *http://www.unl.edu/gradstud/Prospective/Admission.html.*

Herbicide Mode of Action

When: February 27-28

Location: East Campus, University of Nebraska-Lincoln

Cost: $200

Instructor: Alex Martin, Extension weeds specialist

This two-day workshop will use lectures, demonstrations, and problem-solving discussions to cover mode of action and plant response of all major herbicide families. Students will learn about:

1) the symptoms of common herbicides,

2) how rapidly they develop and what plant parts express the symptoms;

3) how common spray additives and safeners work;

4) how herbicide-resistant crops and herbicide-resistant weeds work; and

5) the influence of environmental conditions on herbicide activity.

The course will explain why herbicides with different modes of action may result in similar plant symptoms. For more information about the course contact, Alex Martin at (402) 472-1527 or E-mail him at martin2@unl.edu.

Crop Genetic Engineering

When: March 13-14 workshop

Where: Lincoln, East Campus.

Cost: $200 (Scholarships may be available. Contact Don Lee, NU Agronomy professor)

Instructors: Don Lee, professor of agronomy and horticulture; Carol Caha, agronomy technician, and Ismail Dweikat, assistant professor of agronomy and horticulture

This Web-based workshop will focus on how our changing understanding of genetics and the development of biotechnology methods have resulted in today's transgenic crops. Please contact Don Lee for specific registration information at 402/472-1528 or E-mail him at dlee1@unl.edu

Farm-Level Mapping with GIS/GPS Technology

(Agronomy 496/896)

When: March 13, 14, 15 workshops

Where: Keim Hall 210, East Campus, University of Nebraska-Lincoln

Format: Three one-day workshops with computer training

Cost: $100 for each one-day session

Instructors: Bob Caldwell, assistant professor and Extension cropping systems specialist in the Department of Agronomy and Horticulture at UNL, along with industry representatives.

Part I. Introduction, Farm Level Mapping, March 13

Part II. Applications of Farm level Mapping, March 14

Part III. On-Farm Research, March 15

Three one-day workshops featuring lecture, outdoor GPS exercises and hands-on computer work. Undergraduate and graduate credit, non-credit, and CCA/CEU professional development credits are available. Parts I and II form a 1-credit hour module. Assignments, including a case study, are combined with Part III to form a second 1-credit hour module. Students applying for academic credit must have access to E-mail and a computer capable of running free mapping software. Course assignments must be completed within one year of enrolling.

Part I will introduce farm base maps for precision farming, coordinate systems for georeferences, and types of digital map data available from government agencies. The functions of commercial GIS and GPS products will be studied. Part II will address yield mapping, soil fertility mapping, remote sensing, prescription mapping for variable-rate application technology, and profit mapping.

Part III is designed for those interested in using GIS/GPS technology for on-farm research. The class includes a review of treatment designs, experimental designs (e.g., the split-planter design, RCB, CRD), kriging, hypothesis testing, and multivariate methods. Basic statistics will be discussed: accuracy versus precision, population parameters versus sample statistics, and within-plot versus between-plot variability. Errors typical to yield monitors will be analyzed.

For more information about the course/workshop, please contact Robert Caldwell via e-mail at rcaldwell1@unl.edu or by phone at (402) 472-4792. Costs: $100 per one-day workshop; graduate tuition or registration within one-week of the class is extra.

Marketing meeting options

A variety of marketing workshops are being offered this winter and spring by Cooperative Extension and the NU Department of Agricultural Economics. For further information on any of these meetings, please contact Deb Rood, program coordinator for the Department of Agricultural Economics, at 800-535-3456 or by Email at drood@unl.edu

Business Plan Workshop

December 19, January 16 and 30

This three-day workshop on writing a business plan for your operation will be held at the New World Inn in Columbus. Topics include: communication, goal setting, financial analysis and time to plan for growth and continuation of your business. Cost is $200 for two persons from the operation for three sessions.

Options Workshop

January 25-26

A two-day workshop on marketing options for men and women who want to add this tool to their marketing plan. The course will be held at the Nebraska Youth Leadership Development Center near Aurora. Topics will include: how options work, different option strategies, using options in a marketing plan, and when options make sense for your operation. Cost is $75 for registration; motel cost is $34 per night for up to two people. Registration is limited to 50 attendees.

Marketing Blueprint

February 22-23

A two-day workshop for couples on writing a marketing plan for their operation. The course will be held at the Nebraska Youth Leadership Development Center near Aurora. Topics will include: how to write a marketing plan, setting marketing goals, pulling the marketing trigger and living with the decision. Cost is $75 for registration and $34 per night for a motel room for up to two people. Registration is limited to 50.

Charting Workshop

March 9

A workshop on charting the markets will be taught by Rosemary Hartter. Open to both men and women, this workshop will cover the basics of charting, different charting formations and what the charts can tell you. The workshop will be held at College Park in Grand Island from 9 am to 4 p.m workshop. Cost is $50 per person, which includes the noon meal, breaks, materials and registration. Attendance is limited to 75.

Women in Ag Marketing Curriculum

March 13-14; June12-13; August 21-22; November 14-15

This four-session commodity marketing curriculum for ag women will be held at the Holiday Inn in Kearney. Three areas will be covered:

1) What you need to know about the markets – terms, contracts, how prices are established, and basis;

2) What you need to know about your farm -- costs of production, cash flow, production, and LDP's; and

3) What you need to know about yourself -- personality, risk attitude, goals.

Cost is $300 for all four sessions if pre-registered or $125 for the first session attended and $75 for each additional session. Registration is limited to 50.

Alert: date change

The dates for the February irrigation meetings in central Nebraska have changed. The meetings are as follows:

February 20, 10 a.m. to 3 p.m., Irrigation Efficiency Meeting, Arapahoe Community Center

February 21, 10 a.m. to 3 p.m., Irrigation Efficiency Meeting at the Elwood Civic Center

Agronomy Highlights: Land use in transition

Dec. 5

As urban areas sprawl into traditionally rural, agricultural areas, land uses are becoming major, sometimes pivotal community issues. These issues are the focus of the University of Nebraska's annual Agronomy and Horticulture Highlights program here Dec. 5.

Under the theme "Land Use in Transition," Institute of Agriculture and Natural Resources researchers and specialists will address how changes in land use are affecting the buffer between rural and urban areas. They'll also discuss new uses for and additional income potential from traditional cropland.

The annual event will be from 8:15 a.m. to 3 p.m. Dec. 5 at Lincoln's Cornhusker Hotel and includes lunch for those who registered by Nov. 27. The program will be webcast live and archived on NU Cooperative Extension's web site, Rural Routes, at ruralroutes.unl.edu.

Speakers also will discuss Nebraska's growing potato, dry bean and winter squash industries and cover new opportunities for earning income from farmland, such as carbon sequestration and growing switchgrass as a biofuel crop.

New IANR distance education Web site

A web site describing distance education courses offered by the Institute of Agriculture and Natural Resources is now available at *http://ianrhome.unl.edu/distanceEd/* It covers course offerings and degree descriptions for the Entomology M.S. degree via distance as well as courses through AgLEC and CASNR's new Master of Agriculture program. Learn more about the many opportunities available to pursue a degree or further your education through distance education.

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